

CLAIMS

1. A seal for laparoscopic port comprising:
a base adapted to engage a cannula, the base including an axial aperture for a surgical instrument;
a multiplicity of jaws mounted on the base, the jaws being moveable radially with respect to the aperture between an open position wherein the shaft of the surgical instrument may pass freely and the closed position wherein the jaws engage said shaft and provide a restraining force restraining radial movement of the shaft; and
an actuator rotatable to urge the jaws to move between said open position and said closed position.
2. A seal as claimed in claim 1, wherein the jaws may be adjusted to engage a shaft having any diameter between preselected upper and lower limits.
3. A seal as claimed in claim 1, wherein the jaws are moveable along guides on the carrier plate.
4. A seal as claimed in claim 3 wherein the guides comprise channels between raised formations, tracks or runners.
5. A seal as claimed in claim 4, wherein each jaw comprises a follower member adapted to be received in a respective guideway in an actuator arranged so that rotation of the actuator causes radial movement of the jaw.
6. A seal as claimed in claim 5, wherein each guideway comprises an arcuate channel formed in the actuator, a projection or other follower being received in the channel.
7. A seal as claimed in claim 6, wherein the channels have the configuration of parabolic curves.

8. A seal as claimed in any preceding claim, including a diaphragm adapted to contact the shaft of a surgical instrument extending through the aperture.

9. A seal as claimed in claim 8, wherein the diaphragm includes a lip, each jaw including a radially outwardly facing portion adapted to engage the lip so that the aperture of the diaphragm is forced to open as the jaws move to an open position.

10. A seal as claimed in claim 1, wherein the aperture of the jaws is continuously adjustable between maximum and minimum positions.

11. An actuator as claimed in claim 1, wherein the jaws may be fully opened or closed by a rotation through an angle of 30 to 180°.

12. A seal as claimed in claim 1, including a multiplicity of shield members disposed on the proximal side of the diaphragm to prevent accidental damage to the diaphragm in use.

13. A seal as claimed in claim 12, wherein the shield members are moveable radially between open and closed positions synchronously with the jaws.

14. A seal as claimed in claim 13, wherein each shield member is attached to a respective jaw.

15. A seal as claimed in claim 14, wherein the shield members are interleaved to form a continuous barrier covering the diaphragm.

16. A seal as claimed in claim 1, wherein each jaw member has two laterally extending shield members.